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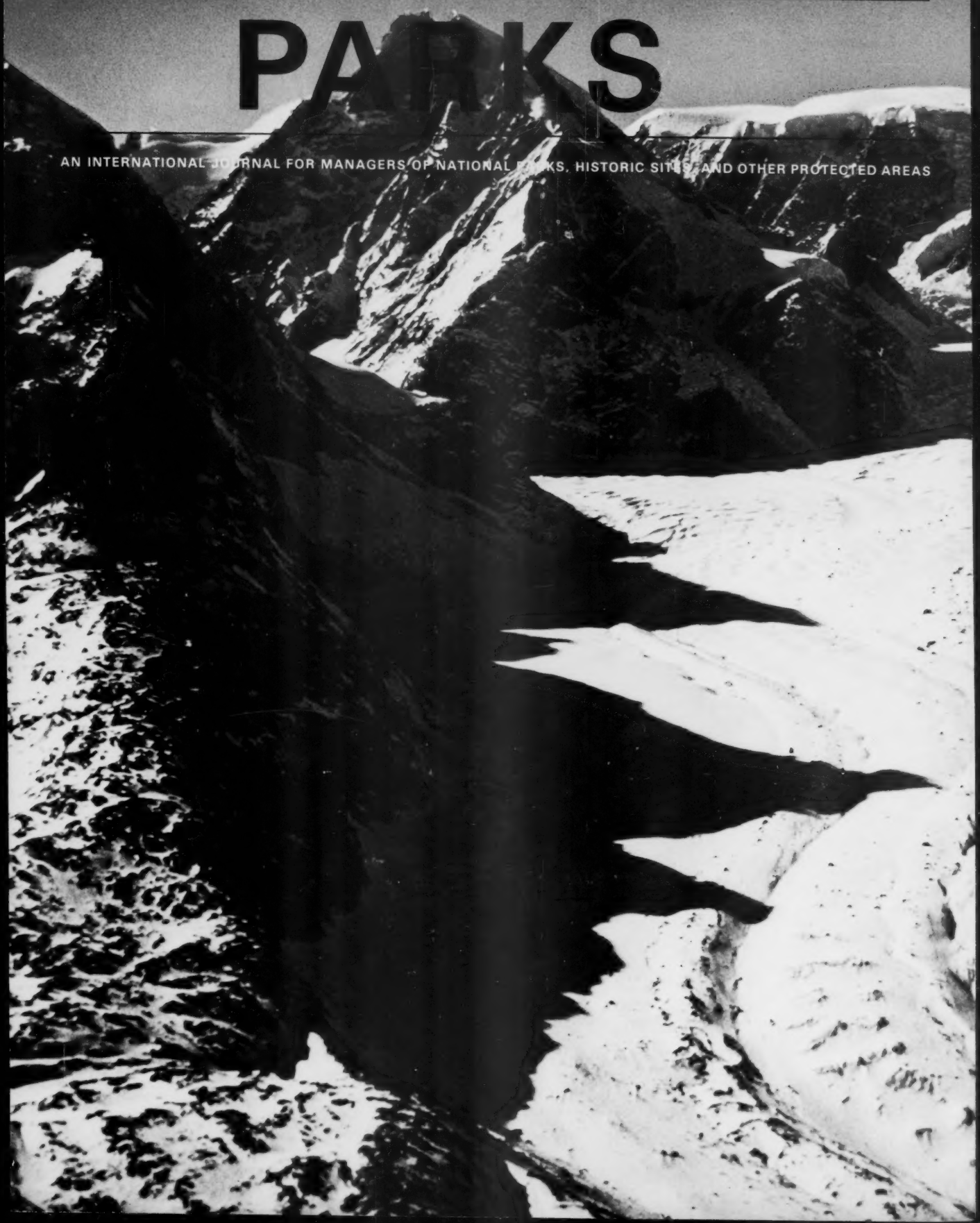
PARKS

AN INTERNATIONAL JOURNAL FOR MANAGERS OF NATIONAL PARKS, HISTORIC SITES, AND OTHER PROTECTED AREAS



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Volume 1, Number 1 April-May-June 1976

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< *STAUNING ALPS in the North East Greenland National Park are among the most striking features of the Greenland landscape. Photo: Christian Vibe*

PARKS Magazine is an international publication for the exchange of information on the planning, use and management of the world's national parks and other protected natural and cultural resources.

PARKS Magazine is a pilot project, published by Parks Canada and the National Park Service of the United States. It is produced in collaboration with FAO, UNESCO and the Organization of American States (OAS), and with the cooperation of the Commission on National Parks and Protected Areas (IUCN) and Regional Advisors throughout the world.

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The English and Spanish editions of PARKS Magazine are published in the United States with the cooperation of the Organization of American States and the Eastern National Park and Monument Association. The French edition is prepared and published in Canada by Parks Canada.

This is the first issue of PARKS Magazine. It is published as a medium for the international exchange of professional information and ideas in this field.

PARKS Magazine is a direct response to Recommendation No. 16 of the Second World Conference on National Parks, and earlier calls for international interchange of expertise in this broad field. Subject matter, therefore, will deal mainly with planning, management and operation of national parks and other protected areas, including important cultural landmarks and resources.

The magazine will fill a long-felt need that has become more critical with each passing year. Hopefully, this interchange will provide stronger incentives for good planning and management, new ideas, refreshed skills and broader guidance for the men and women to whom the administration of these areas and resources is entrusted.

PARKS will be published quarterly in separate language editions in English, French and Spanish. The sponsors recognize, of course, the desirability of publication in additional languages, but financial resources to do this are not now available.

Distribution will be by mail. Initially, there will be no subscription fee. Eventually, however, the sponsors believe a modest charge will have to be made so that part of the publishing cost can be recovered.

Editorially, PARKS will function cooperatively. Contributions are requested from professional and technical people working in the many disciplines involved who want to share their experience and knowledge with others. Through exchanges of ideas and information we can all learn to cope more effectively with the burgeoning complexities of our work.

PARKS will be wide-ranging in its coverage, as it must be if it is to make a valuable contribution. Articles on all aspects of work in national parks and related areas will find a welcome on its pages. Principal emphasis, however, will be given to technical and operational aspects.

It must be stressed that this magazine is a cooperative production of several organizations and governmental departments, and thus it must be considered "unofficial." Viewpoints expressed in signed articles are those of individual authors and not necessarily those of the staff, the sponsors and cooperating organizations.

The sponsors and editors of PARKS hold no narrow or nationalistic views as to what may be "best" in national parks or park management. We believe that in park administration and management, as in natural ecosystems, strength results from diversity. This principle applies to ideas, practices, and protection philosophy as well as to the physical nature of the resources.

We look forward to continuing evolution and growth of this publication. The goals are worthy ones which we believe fully justify the efforts and financial expenditures made to achieve them. With your help, cooperation, and encouragement, PARKS will be the success it should be.

Sir Frank Fraser Darling

National Parks . . . a matter of survival

It is inevitable that one's ideas change and develop and perhaps it is a matter for thankfulness that for one who has reached old age he has not quite reached the state of mental slumber, nor have his ideas ossified. My good fortune was to know many of the people who were early in the modern structure of the national park movement, men and women who developed the ideas which fired the pioneers of a century ago—and which fired me as a young man. How do I feel now in 1975? We are dealing with something much bigger than the pioneers could possibly have imagined and I also have a notion that some national parks spread about the world are being inspired by ideas not much in advance of those of a century ago. Such an opinion does not belittle them, but one does wonder at the length of time it takes for attitudes and knowledge to spread, despite two international national park conferences and the outstanding efforts of some individuals in education.

The philosophy of conservation, and the place the national park ideal has within this, have to do with human survival, a survival which is no vague matter in an indefinite future but of urgency within the coming century. The pioneers of the national park idea spoke of the parks as "pleasuring grounds" for the people. The parks are, of course, much more than that; they are areas of the Earth's surface concerned with the survival of our species, physically because they are part of the world's respiratory system and part of the reservoir of living things other than man, but also because the parks will become increasingly significant in maintaining the psychological repose (call it sanity if you like) of the human being.

National parks, along with all the wildlife reserves and refuges throughout the world, are intimately concerned with that *physiology* of communities which means the functioning of living systems. We as an animal species have learned to buffer ourselves against many adverse aspects of the environment; our success in this has to some extent blinded us to the fact that we are just an animal species subject to the same laws of existence as any other living thing in the final analysis. I think the study of conservation in the near future will become more whole than in the past, when soil conservation and wildlife conservation were separate and sometimes at odds with each other, and human survival was taken for granted. We are, or should be, all together in this, reaching a philosophy of conservation which accepts the fact of interdependence of all living things, which no unselfish human being can ignore. There is nothing merely academic about conservation or its philosophy, nor is it what some politicians have chosen of late to call it, elitist, that word in itself being used in a mistaken sense.

I remember well the day when human ecology was virtually unrecognized. Ecology was thought to deal only with nature. Now, it is realized how little of nature is unaffected by the influence of man, and man and nature are not so far apart as they were thought to be as recent as twenty-five years ago. There is but one ecology and we as arbiters of the planet's future are the guardians of its denizens. The national park ideal is stretching into our own backyards and we are an inseparable part of the fauna.

Juan Black M.

Galapagos National Park, problems and solutions

Substantial parts of the unique ecosystems of the Galapagos Islands have been modified and much has been ruined, mainly by the destructive action of introduced animals and plants. Contributing factors include the hunting of native game and the intensive use of other natural resources such as trees and sand, and the human occupation of certain areas. Fortunately, the Ecuadorian Government as well as the international scientific and conservationist community have taken steps to conserve the ambience of the Galapagos and to restore the natural conditions wherever possible. Protective action has produced gratifying results and has given great impetus to the accomplishment of other programs, and there is even the possibility that the islands may be set aside as a biosphere reserve under UNESCO's MAB 8 program.

The Problems

The deterioration of the ecosystems of the Galapagos Islands began with the hunting of some of its animal species; pirates, whalers and other mariners in past centuries took a great number of the giant tortoises (*Geochelone elephantopus*) to provision their ships. These animals, which are able to live a long time without food and water, served as living larders for the seamen of that epoch and provided them with not only meat, but also the much coveted oil (Charles H. Townsend, 1925, 1936, made a detailed study of the tortoises in relation to the whaling industry). The hunting of "galapagos," the local name for the giant reptiles, was continued by settlers in some of the islands and by collectors of the entire world.

Fur seals (*Arctocephalus australis galapagoensis*) were hunted by sealers of the last century until their colonies were reduced to small populations and some were completely destroyed. Turtle doves, flamingos and land iguanas, together with the "galapagos," provided part of the daily diet of the island fishermen.

Man, the ultimate cause of all the problems of the Galapagos Islands, besides settling there and occupying the habitats of the islands' species and hunting the native game, voluntarily or accidentally introduced plants and animals foreign to the archipelago. Goats, rats, mice, dogs, cats, cattle, donkeys, horses, chickens, parasitic invertebrates and other vertebrate and invertebrate species of the world's fauna, previously unknown in the islands, are now common there. Guayaba (*Psidium guajava*) citrus, avocados, cascarilla (*Cinchona*), elephant grass (*Pennisetum purpureum*), and other plants constitute invading plagues of vegetation.

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Many of the islands have been transformed by the destructive action of these plants and animals. Because of the competition for food with all the introduced animals and the destruction of individuals of the species or their nesting grounds by introduced predators, the native species of the Archipelago could not reproduce themselves satisfactorily and the exotic plants and animals proliferated without control or competition. In certain areas, the natural landscape has been completely transformed by human occupation, by the continual destructive action of introduced herbivores, or by the invasion of foreign floral elements.

The Solutions

It is true that man has been the ultimate cause of all the calamities in the Galapagos; but, to say the least, after learning of his errors, he has become preoccupied with remedying the conditions in the islands and has initiated a series of actions directed toward the protection of the natural environment, the native fauna and flora, the insular ecosystems, and the restoration of the natural conditions whenever and wherever possible. Such actions involve the following fields:

a) **Legislation**—In 1934, the Government of Ecuador set a limit on the collection of specimens of insular fauna at one pair, and prohibited the capture and disturbance of the insular animals (Official Register 257, August 31, 1934). In 1936, a good part of the Archipelago was declared national park reserves (Official Register 189, May 14, 1936); legislation was amplified and reaffirmed in 1959 with a Legal Emergency Decree declaring all the unoccupied territory of the Galapagos Archipelago (more than 95 percent of the land area) national park reserves for the flora and fauna of the islands and prohibiting the hunting and capture of many of the indigenous animal species (Official Register 873, July 20, 1959). The Law for the Protection of Wildlife and the Icthiological Resources, of a national character, reinforced even more the conservationist legislation of the Archipelago (Official Register 104, November 20, 1970). The Law for the Conservation of Reserve Zones and National Parks was added in the following year (Official Register 301, September 2, 1971). Finally, in 1973, a group of specialists on national parks from FAO, the Ecuadorian Forest Service, and scientists from the Charles Darwin Scientific Station in the Galapagos worked out a draft of the "Master Plan for the Protection and Use of the Galapagos National Park," a document which was approved in 1974.

b) **Institute of Science and Conservation**—In 1959, an international institute was organized for the study of the Galapagos and the protection of the unique character of the Ecuadorian Archipelago which is now known as the Charles

This is the giant Galapagos tortoise that so characterizes the Galapagos Islands. Ten subspecies of this huge reptile survive. Photo: J. MacFarland

Native vegetation on the island of San Salvador. Photo: O. Hamann

This view is of Santa Fe Island before the extermination of goats; the lower vegetation has disappeared completely through the destructive action of the goats. Photo: O. Hamann

Darwin Foundation for the Galapagos Islands. This group, under the auspices of the Government of Ecuador, the IUCN, and UNESCO, established its field station, the Charles Darwin Scientific Station, on Santa Cruz Island.

In October 1968, the Ecuadorian Forest Service sent two officials to the Islands to organize the National Park Service of the Galapagos. Since then the Service has grown to include not only administration of the Park, but also conservation programs, and control of tourism (organized in 1969).

c) **Accomplishments**—The Charles Darwin Scientific Station through its own efforts or through scientific missions, has accomplished a great many research projects on the insular ecosystems, the fauna and flora, the Galapagos' geomorphology and the climate of the islands. Many of the research projects on the fauna and flora have been useful in the application of conservation programs started by the same institution and continued by the Galapagos National Park Service. At the present time, aside from research, the Darwin Station advises the Park Service on the methods to be used in protective programs of the biota, and the policy to be followed with relation to tourism.

The Galapagos National Park Service, as the instrument for the enforcement of the policy of use, management, and conservation of the park, administers the area in conformity with national policy, regulates tourism and carries out programs of protection of the indigenous species and the eradication or control of introduced plants and animals.

Among the most important projects carried out for the benefit of the unique nature of the Galapagos Islands are the following:

1. Control of introduced animal species most harmful to the insular environment. Feral goats and pigs are hunted by the National Park rangers in the islands which they inhabit, in particular in the zones having the greatest concentration of endemic species and of most importance for their reproduction.

2. In the nesting zones of the giant tortoises, the nests are protected by stone walls and other systems.

3. For the insular species which are under the greatest threat of extinction, the giant tortoise, the land iguanas (*Conolophus*) and the dark-rumped petrel (*Pterodroma phaeopygia*), there are special programs giving particular protection. Individuals among the species of giant tortoises which are in the greatest danger of extinction by man's action or by exotic wild animals are taken to Santa Cruz as adults for breeding under controlled conditions, or the eggs of the reptile are taken to be incubated and the young are guarded until an age when they are no longer menaced by predation and then they are returned to their islands of origin. When the environmental conditions in the islands improve, all the animals being cared for at Santa Cruz will be returned to their original habitats.

4. In order to apply the best methods of control of the harmful exotic species and the correct application of the programs of protection for the native species, the Charles Darwin Station carries out studies on the ecology and population dynamics of both groups.

5. Parallel with these direct action programs in the field, programs of teaching natural history, environmental education, and publications are carried out continuously among the islanders and tourists by both the Park Service and the Charles Darwin Station. On the continent, these programs are carried out by the Galapagos Information Center established by the Faculty of Philosophy, Letters, and Sciences of Education in the Central

University of Ecuador, through an agreement between the Charles Darwin Foundation and the University, and with the financial support of the Frankfurt Zoological Society.

6. Training and education of national scientists is an active program. More than 30 students and professors from four Ecuadorian universities have gone to the islands to do research and receive training at the Charles Darwin Station, and some of their studies have served as a basis for writing theses for degrees at different academic levels.

Goals Attained

Conservationist legislation and field control have reduced to the minimum, if not completely annulled, human destructive action, thus stopping the internal exploitation of wildlife as a source of protein, the export to the continent and other parts of the world of island specimens for zoological parks and collections, and the local killing of the indigenous fauna for the purpose of selling the desiccated parts as souvenirs to tourists.

Programs of control and extermination of harmful exotic species have brought gratifying results; the goats have been eliminated in the islands of Santa Fe, Plaza Sur and Rabida; they have been reduced considerably in Española, Pinta and Marchena where the populations are controlled and held to a minimum. Meanwhile, the pigs are periodically controlled in the zones of tortoise reproduction in Santa Cruz, Santiago and Isabela Sur. As good results of this action we can note some examples: the reappearance of the "pachay" (Galapagos crake, *Laterallus spilonotus*) in Pinta, and the total restoration of the vegetation in the humid part of the island, thanks to the elimination of 36,000 goats between 1971 and 1975. In Santa Fe, the rate of erosion, which was severe due to the lack of vegetal cover, has now been stabilized; many plants which were not found before due to the goats are now actually common all over the island. And as a consequence of the presence of a particular species of plant, a nocturnal butterfly has recolonized Santa Fe.

In a breeding center for young tortoises, constructed with the financial support of the Zoological Society of San Diego, California, more than 600 hatchlings have been produced to help assure survival of subspecies that suffer in the wild. On Pinzon, in the natural environment, they are attacked by the introduced black rat (*Rattus rattus*); on Santiago and Santa Cruz, they are attacked by pigs; on San Cristobal and Cerro Azul, they are decimated by wild dogs; and on Española, they are reduced by human action. Concurrently, the last 14 native adults found on Española, and the only individual of the Pinta species found in the last decade, are being protected in pens.

Of the groups of young tortoises raised in Santa Cruz, some have already been returned to their islands of origin and are regularly checked: 120 to Pinzon, 17 to Española and 25 to Santiago. The first groups returned to Pinzon in December 1970 had an average weight of 3.3 kilos; they weighed some 20 kilos as a mean average in December 1974. We can say with certainty that, thanks to the scientific and conservationist programs, the survival of 10 of the 11 subspecies of giant tortoises that inhabit the islands has been assured.

The educational programs have produced changes in the original negative attitudes of the settlers of the Galapagos towards the National Park and scientific research. At the same time they have pricked the conscience of a great many citizens of continental Ecuador, prodding them to conserve the natural resources of their territory which are unique in the entire world. There is a feeling, based on ideas recently expressed, that the islands not only provide a sanctuary for a spectacular biota on this planet (a sufficient reason to appreciate and conserve it), but also, above all, that they represent an invaluable resource for science, environmental education, scientific-educational tourism, which must be administered in a wise and careful manner in order to obtain the best long range results, and carry out a level of management that will insure the maintenance of natural conditions and the desired economic benefits.

Needs

It is the general opinion of many persons well informed on the subject that the Galapagos National Park, with its system of control and its personnel, is one of the best-controlled parks in the world; however, it could be in a better position if its administration was given greater flexibility and there was wider recognition of the real importance it represents, based on the fact that it manages nearly 90 percent of the land area of the archipelago. There is need for flexibility in its actions, without infringing on the activities of foreign conservation organizations in the island and concern by the Government, for in the majority of cases, the islands and specifically the Galapagos National Park System, reflect the character of the country to foreign visitors.

Specific needs which can be determined are the following:

a. To put into full force the "Master Plan for the Protection and Use of the Galapagos National Park" to accomplish its preplanned programs in due time; this would assure the Park's protection, limited and intelligent use, self-financing of the Galapagos National Park and the complete attainment of the plans for its conservation management.

b. To put into operation the plan for the inclusion of the marine areas in the Galapagos National Park.

c. To insure the continuity of research programs, environmental education, training of national scientists and those representing the Ecuadorian Government (in particular the National Park) through the Charles Darwin Station by such means as self-financing through an investment fund, the establishment of a laboratory on marine biology and expansion of its grounds and its logistic facilities; and an increase in administrative-scientific personnel including a land ecologist, marine biologist, a biologist for the training of national scientists, and an assistant manager.

(Original: Spanish)

Robert M. Linn

Introduction to Masterplanning

The key to success in a national park program is central planning for resource protection, management, interpretation and development.

Masterplanning means different things to different people. Among the various nations and peoples who wish to use a master plan for their parks, differences of culture, climate, economics, technological achievement, tourism, resources and other factors may require a master plan style that is unique to each of them. However, similarities of concept exist, with certain aspects that appear to be basic and necessary to all plans.

This is the first of a series of articles on the subject. Basic elements of the master plan will be explored in brief, and in following issues the various elements will be discussed in greater depth.

A *master plan* is a guide for the resource protection, management, interpretation, and development of a park. It combines concepts and objectives basic to the park, and to the national park system of which it is a part, with thorough knowledge of specific park resources and values. Following is *one example* of how this combination of concepts, objectives and facts can be accomplished.

Exploring the objectives

Well thought-out objectives are necessary and worth whatever effort may be required to produce them, because not only will park employees know what to strive for, but the rest of the master plan and subsequent management actions can be based on a clear understanding of what should be done.

These objectives are the guiding principles that must be adhered to if the particular park unit and the system as a whole are to fulfill expectations.

The best statements concerning objectives will be clear—so clear that there can never be any misunderstanding about what they mean. They will be specific enough to result in positive action being taken. What is stated, of course, must be realistic: the person charged with administration of an area cannot do the job if his instructions amount to impossible goals.

Objectives should be so clear there can never be any misunderstandings about what they mean.

There may be good reason to set "general" and "specific" objectives. For instance, a general objective might be the preservation of a specific type of forest, grassland, desert, or scene of some historic event. A specific objective might be to reintroduce an extirpated animal species, re-establish a natural fire regime, or acquire and maintain historic buildings—some action that would assist in reaching the general objective.

All objectives should, of course, support the perpetuity of the natural, historic and prehistoric resources that make up the park, for without these nothing else will matter.

Dr. Robert M. Linn is a former Chief Scientist of the U.S. National Park Service. He is Senior Scientist at the Great Lakes Area Resource Studies Unit, Michigan Technological University, at Houghton, Michigan, USA.

The resource information base

Gathering information on resources and values of an area is always an essential first step leading to the establishment of a park. In these initial steps, however, information is seldom developed sufficient to assure wise development planning and good management and interpretation of resources. Even though an interim master plan may be written to initiate park establishment, certain information must be gathered before any meaningful more or less permanent plan can be made.

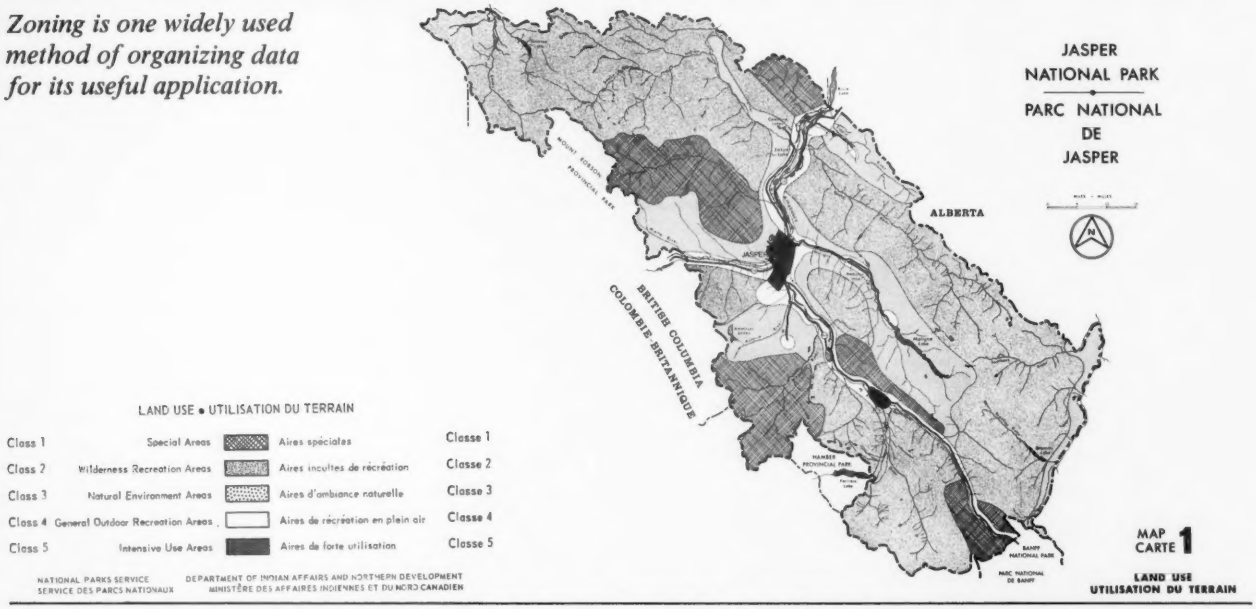
Nothing is more useful for park planning than an accurate and complete resources map.

Nothing is more useful for planning than an accurate and complete resource map of the park area. This should illustrate or delineate geologic formations, vegetation types, elevations, local climatic differences, location of major wildlife habitats, herd migration routes, colonial bird rookeries, and other wildlife information. It should also locate sites of historic and prehistoric structures and artifacts and all unique or special natural, historic, prehistoric or cultural features. Usually it is necessary or desirable to accompany such a map or maps with text material and references to clarify or give more specific information.

Information gathering may be costly; however, this is offset by the major long-term benefits of better management and interpretation of the resources of the park, hence much better preservation of park values. For example, if a certain forest type is one of the natural, outstanding features of a park, hence a feature to be protected, it becomes imperative to know what factors are responsible for the formation and perpetuation of that forest type. Is fire required to maintain a certain successional stage of the forest? What happens to the forest type if an exotic ungulate species is introduced, or conversely, if a native species is lost?

Another example might be the location of certain man-made structures and development complexes. If a road, built in mountainous country, collapses and slides down a mountain side, perhaps it is because not enough was known about the underlying geologic structure. If a complex of tourist accommodations is built on the only available migration route for a park wildlife species, an

Zoning is one widely used method of organizing data for its useful application.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LAND USE
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important wildlife value may be lost.

Obviously, initiating natural wildfire regimes after a prolonged period of complete wildfire control, or relocating and rebuilding a park road, or relocating tourist accommodations would be very expensive activities. The much less costly course in each instance would have been to obtain the necessary basic information prior to action.

Zoning a park

It is extremely important that zoning should precede specific site planning rather than the other way around; this is so because when the planner visualizes a specific development his thinking from that point on is usually biased.

When the basic resource information is obtained, it must somehow be *organized* to be meaningful. There are many ways to organize such information, but zoning is one of the widely used methods. The zones establish areas of the park within which certain activities may or may not be permitted, the kinds and size of developed sites that may or may not be established, and so forth, based upon uniqueness, fragility and value of the various resources found within the zone.

Zoning should precede specific site planning—and not the other way around.

The kinds and names of the zones will depend upon the specific needs and objectives of the park or park system in which the zoning is being done, but the following general categories probably come close to describing the kinds of zones usually decided upon:

Special and/or unique values zone. This is a zone where special or unique values are outstanding and deserve particular attention for their preservation. Most historic and prehistoric sites would fall within this category, as would natural areas in need of manipulatory management. So would many wetlands, salt marshes and estuaries, and marine areas.

Certainly those parts of national parks or reserves which are inhabited by indigenous peoples or those occupying anthropological or unique cultural niches should be protected by zoning that recognizes these special values.*

Primitive or wilderness zone. Primitive or wilderness zones are just that: they are areas in which no roads or developments are permitted and in which management techniques of a manipulatory nature are normally prohibited. These are zones where "only Mother Nature rules." Under normal circumstances, trails and perhaps limited camping sites may be permitted, but their nature and extent must be rigidly controlled because, if they are not, wilderness aspects will disappear.

Limited development zone. An area through which narrow, low-scale roads may pass, and in which primitive shelters or campsites may be built, would comprise a limited development zone. Such limited development must not in any way be detrimental to special and/or unique values within the park. One very important purpose of this zone is to cater to certain types of use, thereby relieving pressures on primitive or wilderness areas. This is accomplished because the limited development provides specific places for camping and specific methods for human waste disposal, etc., in order to eliminate (or reduce) these necessary activities from areas set aside as wilderness or for their special values.

Intensive development zone. For most national parks, this zone is undesirable and perhaps unnecessary. It is a zone in which major roads, hotels, restaurants, and other visitor accommodations occur, along with such attendant facilities as parking areas, service stations, and sewage treatment plants. In each case the goal should be to avoid creating zones of this kind in or near lands containing special or unique values, or lands that exemplify an ecosystem type, a geologic formation, etc.

Subzones or zone modifiers. Subzones, or zone modifiers, may or may not be needed. Certainly no special effort should be made to complicate the zoning plan beyond what is absolutely required; simplicity is nearly always best. Unique situations, however, if not accommodated in another way, may require special attention by the use of subzones or modifiers.

**See the "Park Viewpoints" section of this issue. The needs of native peoples vis-a-vis national parks and reserves will be discussed on these pages from time to time—Editor.*

One very important subzone category that has been used in a number of parks is "time-and-place" zoning. This recognizes the special need to prohibit certain activities in a particular place at a specific time. For example, any portion of a species' life cycle that could be adversely affected by the presence of human activities should be taken into account within whatever zone or zones this life cycle activity occurs. While public use of an area may be normally non-disruptive, a trail or road or campground may need to be closed during times when mating, bearing young, denning or migrating occur, so that a species may continue to fill its niche within the park ecosystem; the area is then reopened after the specific activity period has ended. Another situation requiring the time-and-place zoning technique would be the emergence of potentially dangerous situations such as avalanches or flooding that threaten an area, requiring the closure of nearby roads, trails and campsites to park visitors during such times.

Often the need for time-and-place zoning is unknown at the time a zoning plan is made because advance information concerning unusual circumstances or emergency situations is rarely if ever available. When the knowledge is obtained, it may become necessary to add appropriate subzones, or even to rezone portions of the park.

Having accomplished the zoning plan, the crucial concepts will have been identified and the stage set for making most of the very difficult decisions. From this point on things will take on a more organized appearance.

Planning the specifics: I. Management and Interpretation

The establishment of a national park has as its basic purpose the preservation of a nationally important phenomenon of nature, history, or prehistory, in such a way that the people of that nation may see and appreciate the phenomenon. This assumes that people will have some degree of access to the park, and it assumes that the phenomenon will be of such importance as to span the generations of humankind and be worthy to be preserved in perpetuity. It becomes, then, imperative to design a management system for these park resources that will assure their perpetuation. The list of items that must be considered in a management plan is long and diverse. It is also variable, depending upon specific circumstances. However, if the basic resource information has been thoroughly sought after, and if the park zoning has been thoughtful and sensitive to existing circumstances and the resource values that the park contains, no insurmountable problems should be met.

Specific plans should cover all aspects of management and development.

There may be special areas and sites within parks that require active manipulative management. These should have been identified in the earlier work which determined the objectives of the park, gathered information on the resources and values, and provided basic zoning. It will be in the special and/or unique values zone that this form of management most likely will occur, and at this point, early in the planning effort, requirements for this kind of work should be charted. Some work may be needed immediately and some may be deferred, but priorities should be established in any case.

Some of the problems that may have to be faced might include the control or elimination of exotic plants and animals, the maintenance or stabilization of historic structures, the possible reintroductions of extirpated species, and decisions on areas where active management *will not* occur. A few examples of the last situation might be determining the areas where natural wildfire should be permitted to run its course, or delineating areas in which no vehicles or other machinery and no trails or roads will be permitted because they would constitute disturbing influences on fragile habitats, or wildlife. Some of this will have been so identified in the zoning plan, of course.

In some areas management may mean doing nothing.

A host of other actions need to be considered for management: planning for roadside, trailside and developed area landscaping to avoid the use of potentially harmful exotic plant species; determining the kind of building technology that would not be detrimental to the various resources; determining the methods for disposal of trash and human waste and regulating human activities, especially in certain fragile areas; determining the "recreational carrying capacity"; and always assigning priorities—because there is the always overworked staff and the always underfunded program.

The values and phenomena that have been considered in the zoning and resources management planning are those values and phenomena that must be interpreted, or explained, to the people who visit the park. The same basic resources information is used, but it is used to inform and educate those who desire to know more about the world around them. This can be challenging in any society, and especially so in areas where the visiting public is educationally, culturally, ethnically and/or linguistically diverse.

What to interpret, where to interpret it, who constitutes the audience, and the availability of funds, manpower, and technology will often determine the methods to use—person-to-person talks and guides, self-guiding trails, publications, various audio-visual techniques, and so forth.

The better a visitor understands park resources the better he understands park problems.

There is a special value that accrues to a good interpretive program. The better a visitor *understands* the resources of a park, the better he understands park problems and the need for special regulations and zoning. In this way, park values are more easily protected because the visitor himself, at least in a small way, becomes an active participant in protecting these values. A good interpretive program, therefore, will be designed not only to be palatable, or even entertaining, but it will present a good supply of *facts* and *analyses* that will permit the public to obtain a comprehension of the highest sort. True understanding of park values, problems and programs by the public is perhaps the best insurance that a strong, well-balanced park program will continue in the future.

Planning the specifics: II. Development

Determining what is actually needed in the way of facilities and development and what will actually be constructed, such as buildings, roads, trails, and utilities, as well as the nature of the complex within which they are to exist, should be a function of the preceding parts of the master plan. The zoning (or land classification), together with the interpretive plan and resources management considerations, will largely dictate the amount, location, size, style and type of development that is needed.

A development plan may be accomplished in several different

ways. Organizing the plan may help to organize one's thoughts, and the following is but one way to set out a plan in several component parts.

General development plan: the development for each park of a concept that determines where developed sites will be located and what kinds of services and accommodations each site will need to contain.

Design concept plan: the establishment for each park of a design concept that is derived from the natural, historical, prehistoric, or cultural setting in which the park is situated, that tends primarily to blend developments into the park setting rather than detracting from it, and that promises to fulfill the real needs of visitors and of park management.

Developed area plan: a plan for each developed site or area that will determine the size and location of roads, trails, buildings, and utilities, as well as patterns of visitor flow, general lengths of stay to be permitted, number of visitors to be accommodated, and precisely what should and will be available for the visitors in the area.

Specific plans for roads, trails, buildings, and utilities: engineering and architectural plans in detail.

Planning the specifics: III. Staffing and Funding

The number of resources management projects that must be undertaken, the number of interpretive programs to be given, the number and size of trails, roads, buildings and utilities to be constructed and maintained, and the number of expected visitors to be guided, helped and protected, together will dictate the level of staffing and the number of individuals of various skills and professions that will be needed in the park. Rarely is there sufficient funding to support an optimum staff. Therefore, a plan is essential to an ordering of priorities and to make certain that all aspects are considered. Staffing, construction, maintenance, research, and all the other activities required to carry out the dictates of the master plan require funding equal to the task. Whether these considerations are a part of the master plan or are considered separately and later, they plague all park systems, but they are realities that must be met. A consideration of the funding and staffing possibilities should definitely enter into our initial thinking in such a way that the master plan does not become an unattainable dream!

Priorities must be established on the use of available staff and funding.

Summing it up

A master plan requires:

1. Well-thought-out objectives and concepts.
2. Good information concerning the resources.
3. A classification, or zoning, of land or resources that gives meaning to management objectives.
4. Specific plans for management and interpretation of park resources and phenomena, and the development of visitor and administrative accommodations and facilities.
5. A guide to staffing and funding priorities.

A master plan should bring good information and good concepts together to guide protection, development and management, and ultimately to lay the foundation for an educational and inspirational park experience for present and future generations. This article has presented one way to bring the several elements of a master plan together, but certainly variations will be necessary to fit the differing conditions found throughout the world's parks. Perhaps one of the major reasons for the existence of the master plan concept is that, if adhered to properly, a park can be managed with a consistent set of objectives over a fairly long period of time. Changes will need to be made in almost every master plan, but these should be exceptions rather than the rule and they should be done under the most sober circumstances and for the most compelling reasons, such as to correct past errors of fact or concept, to accommodate new knowledge concerning the resources or their management, to relate to changes in patterns of visitor use, or to new concepts concerning park use or preservation.

The master plan is a tool whose products are park and resource management, and visitor enjoyment. Like a tool, the plan is best when the design is simple and accurate, and fits the task with precision. *And as with the use of any tool, the skill of the user will determine the quality of the products.*

Laurence de Bonneval

North East Greenland National Park

Covering more than 70 million hectares, the world's largest national park will guard fragile Arctic environments and their dependent species.

In May, 1974, the world's largest national park was established in Greenland. Covering about 700,000 sq. km, the new park takes in the whole of northeast Greenland, including part of the icecap and adjoining sea, all set aside under Law No. 266. The park area is vast, covering about the same area as Italy and Paraguay together; wide stretches of stone desert; flat valleys white with cotton grass in July through which clear rivers snake their way to a fjord; rolling hills with grassy slopes and low willow thickets in sheltered sites; high snow covered mountains; a rough coastline—a maze of peninsulas, deep fjords, islands, and glacier fronts—inaccessible throughout most of the year because of the pack ice. The entire park lies within the high Arctic area, from the Stauning Alps (72° N. Lat.) to a point near Canada's Ellesmere Island (83° N. Lat.).

The mean summer temperatures (July, August) do not rise above 4° to 5°C due to the large masses of pack ice drifting from the polar basin. During the eight winter months, the country lies under a more or less thick snow cover. The sea and fjord waters freeze, immobilizing large icebergs calved by the glaciers. Temperatures may fall to -40° to -50°C. Wind and snow storms sweep through the period of total darkness, lit up only by the moon and northern lights. From March onwards, daylight prevails and with it long spells of sunny weather, although temperatures remain low. For example, data relating to two weather stations north and south of the park are given below.

Station Nord Latitude 81°36′ N.	
Mean annual temp.	-16.7°C
Mean temp. of coldest months: January and February	-30°C
Mean temp. of warmest month: July	2.8°C
Darkness period	15 October to 20 February
Mestersvig Latitude 72°15′ N.	
Mean annual temp.	-9.8°C
Mean temp. of coldest month: February	-22°C
Mean temp. of warmest month: July	6°C
Darkness period	19 November to 23 January

Apart from the three weather stations, Mestersvig, Danmarkshavn, and Station Nord and the police sledge patrol at Daneborg, nobody lives permanently within the park area.

Laurence de Bonneval is Scientific Secretary for the French MAB Committee. Mlle. de Bonneval has spent considerable time studying and photographing in Greenland and for four years she served on IUCN's professional staff at Morges, Switzerland. This article was adapted from Le Courrier de la Nature, *May-June 1974.*

Islands in Vega Sound lie locked in winter ice on the coast of the North East Greenland National Park. Photo: C. Vibe

Why, then, has it appeared necessary to set aside such a vast area? A few years back, Dr. Christian Vibe, a Danish zoologist who was mainly responsible for the creation of the park, stated that once protection has become necessary, it is already too late. It is an accepted fact that preservation of an endangered plant or animal can only be achieved by protecting its environment. But nowadays man's technology gives him the power to destroy within a few months' time a fragile environment, to cut migration routes followed by animals for thousands of years, or to prevent their seasonal migrations.

The rapidly growing population of Greenland, the discovery of new mineral resources and development of tourism may destroy in a short time the highly susceptible arctic environment. Thus it appeared vital to preserve in time an area that is valuable for many reasons.

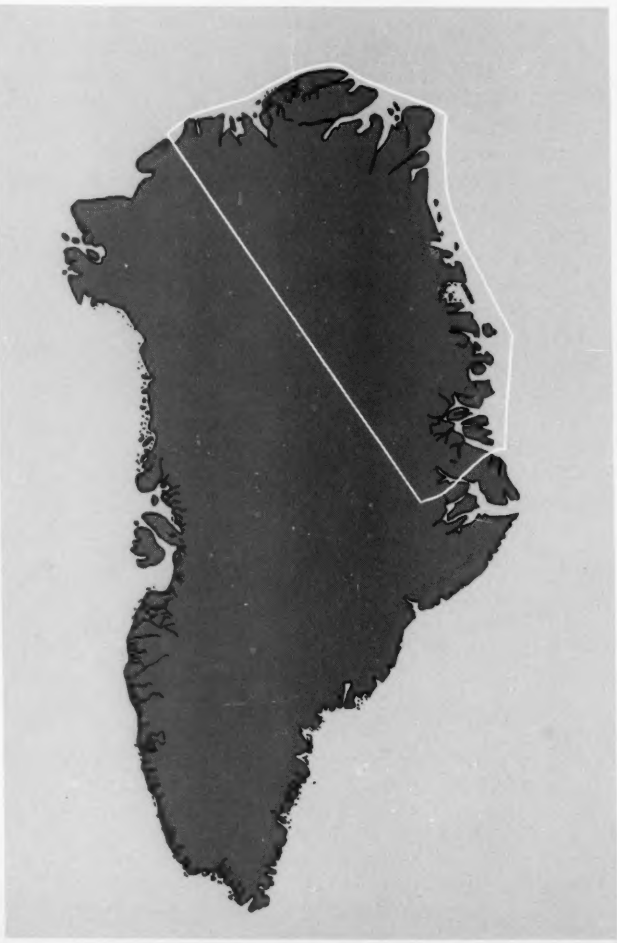
For thousands of years north Greenland has been the route for animals and men migrating into the country from the American mainland, across Ellesmere Island. The area has also served as a natural "reservoir" for animal populations which had disappeared in their native country due to unfavorable climatic changes. Such was the case for musk-ox (*Ovibos moschatus*), a native of the Asian steppes where it had become extinct. Musk-ox bones 5,000 years old have been found in north Greenland. One of the last wild populations survives in the park area, feeding on the brief summer vegetation of grasses and Arctic willow leaves and scraping food from under the snow in winter. The fairly stable climatic conditions, without sudden warm spells which cause abundant snowfall or rain with icing over all the ground (which often occurs when the sea remains open in winter), allows this mammal to live under such extreme conditions. Some ten years ago, Dr. Vibe, fearing unfavorable climatic changes, had 27 calves translocated to the hills around Søndre Strømfjord, in west Greenland. The young animals have adapted well to their new surroundings and breed regularly, every other year, whereas in north east Greenland, few calves were able to survive the winter of 1973 and 1974 in areas with heavy snowfall. Since the wolf became extinct in Greenland in the mid-1930's, musk-oxen have no animal enemies, although the polar bear is a potential predator.

The latter, however, rarely attacks musk-oxen but feeds on seals living in the fjords or offshore in the drift ice in summer. The national park area is the most important denning and breeding area for polar bears in Greenland. The female gives birth to two cubs every third year. She breaks out of her snow den in late March and, followed by her cubs, roams the frozen fjords in search of seal igloos on the fjord ice. In summer some bears move out to the pack ice to catch seals and are sometimes carried southwards on drifting floes. Other species occur within the park. The lemming (*Dicrostonyx groenlandicus*), a small furry rodent and its predators, Arctic fox (*Alopex lagopus*), stoat (*Mustela erminea*), snowy owl (*Nyctea scandiaca*), and gyrfalcon (*Falco rusticolus*). These also feed on Arctic hares (*Lepus arcticus*), ptarmigan (*Lagopus mutus*) and on the geese (pinkfooted goose, barnacle goose), eider ducks and seabirds breeding in the area in summer.

The establishment of the national park was greeted favorably by the Danish and Greenlandic population in general, less so by the people of Scoresbysund and of the three weather stations. The former do not wish to see their hunting possibilities limited, the latter—living within the park boundaries—are deprived of their main leisure activity. The Greenlanders will most probably be given the right to hunt sea mammals with traditional means, i.e. with gun and as far as their dog sledges can reach. However, their attitude towards the park regulations may change once they realize that by protecting the breeding sites of animal populations the park serves as a reservoir and provides a regular supply of animals

Basic Information, North East Greenland National Park

Country:	Greenland (Denmark)
Position:	83° 39′—71° N. Lat.
Area:	70,000,000 hectares
Established:	Law No. 266 of 22 May 1974 (Effective 1 July 1974)
Populated Places:	Mestersvig, Danmarkshavn, Station Nord, (all weather stations), Daneborg police sledge patrol.
Protected:	
All mammals	Seals, walrus, whales, polar bear, Arctic fox, musk-ox, stoat, Arctic hare, lemming
All birds	Snowy owl, gyrfalcon, ptarmigan, geese, eider ducks, etc.
All plants	
Archeological sites and remains	
Development Proposed:	Lodging facilities for scientists and other visitors flown in from Mestersvig by helicopter. These are not expected to be ready in the near future.



POLAR BEAR—Recent scientific expeditions indicate that there may be several hundred polar bears within the park area and that this population is relatively permanent with few or no connections with the populations of Svalbard or Canada. Scientists study bear biology and migration patterns. Here a Danish team approaches a tranquilized bear to take samples of blood, fat and milk and to affix identification marks and ear tags. Photo: Thor Larsen

outside its boundaries.

It is to be hoped that in the coming years the park will be equipped with visitor facilities, under controlled conditions and in one particular site which offers many possibilities for hiking, climbing, birdwatching or field botany studies. Man's impact will thus remain limited and natural processes will follow their course, affected only by climatic changes which, periodically, may favor or impede the survival of some species, even to the extent of causing their extinction, as has been the case for man, wolf and caribou. The protection of the area will, however, allow such species to wander back into the park when climatic conditions are once more favorable. The park was established for that purpose—as a witness of and a reservoir for all forms of life adapted to the extreme Arctic environment.

Original: French

Howard Brabyn

Protection of the World Heritage

A new convention, now in force, has special significance for national parks which encompass natural or cultural treasures, or both.

On September 17, 1975, Switzerland became the twentieth country to ratify the *Convention Concerning the Protection of the World Cultural and Natural Heritage*, and consequently the Convention, adopted by the General Conference of UNESCO on November 16, 1972, came into force on December 17, 1975.

The preservation of man's cultural heritage and the conservation of nature have traditionally been regarded as two quite distinct problems, with responsibility for the protection of outstanding cultural or natural sites being considered to lie exclusively with the country in which they are located.

Today both our cultural heritage and our natural heritage are increasingly threatened not only by the traditional causes of decay, but also by changing social and economic conditions and by the ravages of pollution stemming from rapidly expanding industrialization. In many cases, the protection of this heritage at the national level remains incomplete through lack of sufficient resources in the country concerned.

Special Responsibility

Under the terms of its constitution, UNESCO has a special responsibility for the protection and conservation of the world's cultural and natural inheritance. Important steps to fulfill this responsibility and to provide a legal framework for action have already been taken by the adoption of the *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (1954) and the *Convention on the Means of Prohibiting and Preventing the Illicit Export and Transfer of Ownership of Cultural Property* (1970). UNESCO also acts as depositary of the *Convention on Wetlands of International Importance especially as Waterfowl Habitat*.

UNESCO has also been instrumental in setting up training centers to meet certain needs for specialized personnel in conservation. Thus, the Organization created in 1959 the International Centre for Study of the Preservation and Restoration of Cultural Property, located in Rome, and has since assisted in the establishment of a number of regional centers, including those in Baghdad (Iraq), Churubusco (Mexico), New Delhi (India), Tokyo (Japan) and Jos (Nigeria), the emphasis of the program of the latter center having been extended from museum techniques to the wider problem of conserving the cultural and natural heritage. The teaching of nature conservation has been promoted in a number of countries through expert missions and training courses. A training component is included in all the research projects of UNESCO's Man and the Biosphere (MAB) program.

With the coming into force of the *Convention Concerning the Protection of the World Cultural and Natural Heritage*, action in this field both by UNESCO and the international community has

Howard Brabyn wrote this article for UNESCO's publication, Nature and Resources, of which he is the editor. We reprint it with UNESCO's permission since it is of basic interest to national park managers.

Extremely rare species and their habitats are important elements of the natural heritage. This is the Javan rhinoceros at Udjung Kulon reserve in Indonesia. Photo: Andries Hoogerwerf.

been given new impetus. Covering as it does the protection of both the natural and the cultural heritage, which in most countries is entrusted to separate groups of specialists working within separate administrative structures, the Convention underlines the fact that both are factors in our perception of the quality of life and that both deserve equal protection on an international as well as a national basis.

Countries party to the Convention recognize that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage belongs primarily to the State within whose territories it lies, but they also recognize that it constitutes a world heritage for whose protection it is the duty of the international community as a whole to cooperate. Under the Convention, international protection of the world heritage is understood to mean the establishment of a system of international cooperation and assistance designed to support the efforts of States party to the Convention to conserve and identify that heritage.

Definitions

The first two of the Convention's 38 articles are devoted to the definition of the cultural and natural heritage.

The **cultural heritage** is considered to encompass:—"monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave-dwellings and combinations of features which are of outstanding universal value from the point of view of history, art or science;

—"groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;

—"sites: works of man or the combined works of nature and man and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view."

The **natural heritage** is defined as covering:

—"natural features consisting of physical and biological formations or groups of such formations which are of outstanding universal value from the aesthetic or scientific point of view;

—"natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty."

World Heritage Committee

The Convention provides for the establishment of a World Heritage Committee composed of 15 States to be elected at a general assembly of all the States ratifying the Convention. Now that the twentieth ratification has been received, plans can be made to hold the first general assembly in November 1976 during the 19th General Conference of UNESCO.

Three international organizations will act within their respective areas of competence as advisers and assist the Director-General of UNESCO in the implementation of the Committee's decisions. These groups are the International Centre for the Study of the Preservation and Restoration of Cultural Property, Rome; the International Council of Monuments and Sites (ICOMOS), Paris; and the International Union for Conservation of Nature and Natural Resources (IUCN), Morges, Switzerland.

On the basis of inventories submitted by individual States the Committee will draw up a "World Heritage List." Inclusion of a property in the list will, of course, require the consent of the State concerned.

Whenever the circumstances warrant such action, the Committee will also establish a "List of World Heritage in Danger." This will list property for the protection and conservation of which major operations are necessary, and for which assistance has been requested under the terms of the Convention. This list will include property threatened by serious and specific dangers as, for example, the threat of disappearance caused by accelerated deterioration, large-scale public or private building projects such as rapid urban or tourist development projects; destruction caused by changes in the use or ownership of the land; major alterations due to unknown causes; abandonment for any reason whatever; the outbreak or the threat of an armed conflict; calamities and cataclysms; serious fires, earthquakes, landslides; volcanic

eruptions; changes in water level, floods and tidal waves.

To finance rescue operations Article 15 of the Convention provides for the establishment of a "World Heritage Fund" which will consist of both assessed and voluntary contributions from signatory States as well as contributions, gifts or bequests from other States, from public and private organizations and from individuals.

Ancient works of man are part of the cultural heritage which should be protected. This monument is at Petra in Jordan.

This important article of the Convention provides the Committee with the "muscle" to take firm action. The interest aroused by the provision for voluntary contributions is evidenced by the fact that two such contributions have already been received from States that have not yet ratified the Convention and there are indications that other voluntary contributions are likely to follow.

Recognition Still a Problem

The importance of all cultures, to whatever civilization, past or present, they might belong, is, unfortunately, still not recognized by all nations. The heritage of certain periods are ignored or destroyed, thereby eliminating the possibility of completing man's knowledge of his past and destroying the historical continuity of a nation. Thus, many consider prehistoric remains to be of relatively little value which, apart from the interest of a limited number of scholars, are all too frequently ignored. The historic landscape with its associations with religious beliefs, outstanding events, or even aesthetic beauty have frequently been sacrificed in the name of progress. Extensive action is still required to ensure that cultural monuments and sites representative of all the different periods and regions of the world are adequately preserved and protected.

This need is paralleled by the need to protect natural land and coastal environments throughout the world containing representative examples of natural biomes or habitats so that as complete as possible a range of such biomes can be preserved for future generations. Work on this problem has already begun within the framework of the UNESCO Man and the Biospnere project No. 8, under which an international network of protected areas, known as biosphere reserves, is being established. The purpose of these biosphere reserves is to conserve plant and animal species and the ecosystems which sustain them. They provide areas for the study of ecosystem-functioning and baselines or standards against which change can be measured and the performance of other ecosystems judged.

The coming into force of the Convention undoubtedly marks an important step forward in the development of world awareness of the moral obligation to respect and safeguard those natural and cultural properties most representative of a natural environment or of the genius and history of the peoples of the world.

G. S. Child

Training Personnel for National Parks

Professional training activities in Africa and elsewhere have done a good job, but expanded programmes are clearly needed, especially within geographic regions.

The Food and Agriculture Organization (FAO) of the United Nations is one of the principal agencies dealing with training of personnel from developing nations for work in the management of national parks. This training is handled through the Forest Conservation and Wildlife Branch of the FAO's Forestry Department in Rome. What are the criteria for training and education and how are they made available?

In order to provide the greatest possible opportunity for training and education, all FAO wildlife and national parks projects have a training and education component. This may take the form of scholarships and fellowships, which are routine in every project, but there may also be other kinds of training built into the project.

The FAO recognizes three broad levels of training for national parks services, lower level, middle level and higher level.

On all levels the aim of the FAO has been to ensure as far as possible that training is broadly based and relevant to the objectives and policies of national park administrations in the countries which request the training and submit the candidates. With all this in mind let us examine the three levels separately.

Lower Level Training

Lower level training is designed for guides, guards, rangers and similar personnel whose specific tasks and responsibilities may vary widely or may overlap. A guide may be occupied in conducting tours; a guard may be exclusively concerned with anti-poaching work, and a park ranger may be concerned with making wildlife observations in the park. But sometimes a single individual may be called upon to carry out some or all of these jobs. He may also be sent by the park service to assist some other unit, a wildlife project for example, outside of the park.

Since national park agencies generally need more personnel with lower level training than those with middle and higher level training, FAO advocates and sponsors programmes at the country level for training park guides, guards and rangers. Some countries (e.g. Kenya, Central African Republic, Nigeria and Botswana) favour establishment of institutions for training personnel at the lower level in conjunction with allied natural resource disciplines such as wildlife management, forestry and fisheries. These schools conduct regular courses and ensure a steady flow of trained personnel. An alternate approach adopted in other countries (e.g. Zaïre, Zambia, Ghana) is to arrange on-the-job courses as and when required. These courses can be created with minimum capital input and have the necessary flexibility to take account of training requirements for the various types of work and areas to which the participants will later be assigned. A period of about three months is usually ideal for such courses. Those who are trained at this level

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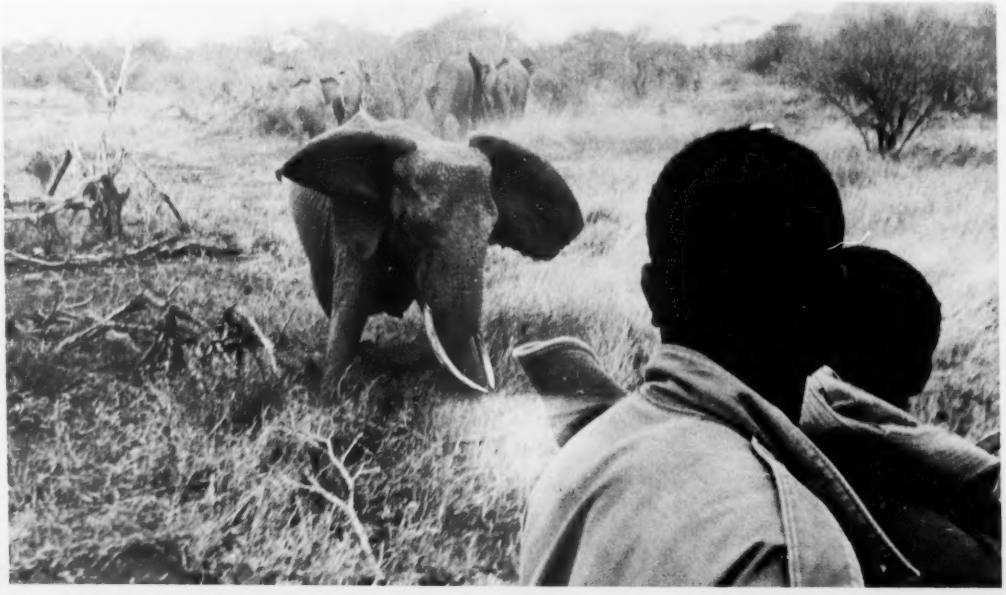


During a field exercise in the Tsavo National Park, Tanzania, students of wildlife and national parks management learn to predict the habits and behavior of elephants. The female elephant is making a demonstration charge, which was deliberately provoked, and is at the point where she is stopping short of carrying out her threatening behavior. FAO photo: F. Botts

Students of animal anatomy in the first class at the Mweka College of African Wildlife Management. Today all of these men work in wildlife and national parks management. FAO photo by F. Botts

have little formal education, therefore their capacity to absorb sustained academic learning is usually limited and it is best to utilize practical and field activities for instruction as much as possible.

Middle Level Training

There are wide differences in the status and responsibility of warden level personnel in developing countries. In part this is due to the history of colonialism. Parks and wildlife agencies tend not to be structured in the same way as the agencies of other disciplines such as agriculture, livestock and forestry. In these latter disciplines the agencies under colonialism had separate cadres of technical officers and professional officers, but not so with wildlife and national parks administrations which, for the most part, came at the end of or right after colonial times. The result is that in some developing countries wardens are expected to fulfil both professional and technical roles with the rank and salary of lower grade technical officers.

The form of regional middle level training has been developed through FAO's experience with the College of African Wildlife Management at Mweka, Tanzania, and the School for Wildlife Specialists at Garoua, Cameroon. The need for regional schools in Asia and Latin America was recognized even before the African schools were started but for a variety of reasons, mainly financial, plans for regional institutes in Asia and Latin America have yet to be put into effect. The schools at Mweka and Garoua in the meantime developed well and became, in effect, models for the regional approach to wildlife and national parks middle level training.

The more time passes the more calls there are from governments in Asia and Latin America to have regional schools in this field. This is reflected, for instance, at every FAO Regional Forestry Committee Meeting. The creation of such schools could provide fertile ground for projects initiated by development agencies of individual donor governments or by private foundations. The schools at Mweka and Garoua, especially in their early stages, relied on assistance from the Ford Foundation, the Rockefeller Brothers Fund, the African Wildlife Leadership Foundation and the Frankfurt Zoological Society. This was supplemented by bilateral assistance from governments (Canada, France, U.K., U.S.A., Federal Republic of Germany) and multilateral assistance from the FAO financed by the United Nations Development Programme (UNDP).

The African schools were designed to function along language and geographic lines: east and southern African English-speaking students going to Mweka and west African French-speaking students going to Garoua. Originally each school was headed by an expatriate director but both are now run by African directors. The Mweka school is headed by Dr. Felix Nyahoza, former Dean of the Faculty of Science at the University of Dar es Salaam, Tanzania, and the Director of the Garoua school is Mr. Andrew Allo of Cameroon, a former student himself at Mweka and a graduate of Michigan State University in the U.S.A. There is now a growing feeling that the curricula of both schools should allow for more specialization and it has been suggested that there should be options which would enable students who know they will be assigned to national parks or wildlife work in their countries to select appropriate courses.

Higher Level Training

This category covers university level training to cater for the requirements of professional staff in the field of management and research of national parks. The greater part of this training has been carried out in North America and Europe where courses in relevant disciplines are offered. FAO scholarships are also made available for such studies.

From the point of view of developing countries in the tropics, this training suffers from the inherent drawback that it is geared to temperate ecosystems in developed countries. The problem can be overcome in the short term by selecting as students persons with a sound basis of national parks experience in their homelands, or by providing orientation courses for returning graduates. The long-term solution to the problem must lie in the development of appropriate courses at universities in developing countries.

Other Training Programmes of FAO

Training has been a major activity of FAO's regional wildlife management programme in Latin America, with emphasis on workshops and on-site training in specific national parks. In Latin America emphasis was also put on the training of university professors for wildlife and national parks management with in mind the "multiplier effect" that is implied whenever development aid is invested in teacher training.

Lower level training for national parks has received particular attention in Nepal, where it forms an integral part of the programme of a UNDP/FAO national parks project there. The fellowship components of this and other projects in Asia have

provided training and study travel overseas for national counterpart personnel.

The annual International Seminar on the Administration of National Parks and Equivalent Reserves, carried out in Canada, Mexico and the U.S.A., has been supported over the years by FAO. Programmes have also been sponsored and arranged for fellows to visit other regions or other countries within their regions on study tours.

Progress in recent years with national parks training, education and the staffing of national parks administrations of developing countries has been very encouraging. All of this is, of course, at beginning stages and there is much room for growth in the programme. Whether or not it does grow depends on the extent to which FAO member governments recognize the value of this work and urge its financing. Clearly needed are programmes and facilities for the training of most professional national parks personnel within geographic regions of the developing world or in individual developing countries. This is also what the governments of developing countries are asking for more and more rather than for scholarships to send their students to schools in developed countries. In all probability, this will be the direction of training and education in the future.

Costa Rica Saves Unique Rain Forest

More than 300 sq km of the Corcovado Basin on the Osa Peninsula of Costa Rica's Pacific coast has been decreed a national biological reserve by Daniel Oduber, President of Costa Rica. The reserve is now the largest protected area of tropical wet forest in Central America.

Described by the Tropical Science Centre in Costa Rica as "one of the biologically richest and most visually impressive tropical rain forest areas still unaffected by human settlement in Costa Rica," Corcovado is one of the most diverse tropical areas for its size in America. Many thousands of plant and animal species live within 20 or more ecologically distinct but closely linked natural communities.

The Corcovado Basin is believed large and environmentally diverse enough to provide full territories and assure reproductive success in populations of even the largest and most wide-ranging animals, the rarest plants, including trees over 50 m, and the most sparsely distributed representatives of very specialized species of insect, amphibian, bird and mammal. Its management as a national biological reserve will provide Costa Rica with scientific, educational and long-lasting economic benefits. The Tropical Science Centre believes that revenues from well controlled scientific research and tourism, both local and foreign, are likely to be greater than the short-lived income to be derived from destructive lumbering, livestock raising, or subsistence farming.

By decreeing Corcovado a national biological reserve, President Oduber and the Costa Rican Government have ensured that it will contribute fully to national development in four ways: as a gene pool of enormous diversity to which Costa Rica and other tropical countries could turn in their search for improved or new species and varieties of domesticated plants and animals; as a field laboratory where scientists may acquire the knowledge needed to ease the development of a harmonious and lasting adaptation between society and the tropical humid environment; as a natural schoolroom for Costa Ricans; and as a perpetual source of beauty, inspiration and pleasure for the visitor.

A great many biologists have researched at Osa, making major contributions to biological science. Between 1964 and 1973, Osa was used as a living laboratory and classroom for the field training of more than 1,000 university students and professors from North and Latin America. This "scientific tourism" brought millions of dollars in foreign exchange into Costa Rica, and international fame to the Osa. However, by 1973, all biological research and educational activities in the area were forced to stop due to a major shift in management objectives by the Peninsula's principal landowners, Osa Productos Forestales.

At this point, the Tropical Science Centre, the National Park Service of Costa Rica and Amigos de la Naturaleza in Costa Rica joined with the Nature Conservancy and the World Wildlife Fund in the USA to draft a proposal on how best to safeguard the Osa. Intense negotiations between the Costa Rican government officials, the Nature Conservancy International Programme, Osa Productos Forestales and various Costa Rican conservation groups culminated in the Presidential Decree.

(Excerpted from the IUCN Bulletin of January 1976)

This is one of two Council of Europe posters supporting its 1976 effort to save wetlands. The posters were painted by Dr. Fulco Pratesi, Vice President of the World Wildlife Fund—Italy.

Wetlands Convention

The **Convention on Wetlands of International Importance especially as Waterfowl Habitat** came into force on December 21, 1975. However, despite the clear economic gains to be won by conserving wetlands, especially coastal ones, very few nations have adhered to it.

So far there are eight Contracting Parties to the Convention: Australia, Finland, Greece, Iran, Norway, South Africa, Sweden, and Bulgaria, which on 24 September signed it without reservation. Eight other States have signed but not yet ratified the Convention: Belgium, Federal Republic of Germany, Ireland, Italy, Netherlands, Switzerland, USSR and United Kingdom.

Of the three conservation conventions to come into force during 1975, the Wetlands Convention has taken the longest to bridge the gap between adoption and entry into force, and has far fewer contracting parties. The **Convention on International Trade in Endangered Species of Wild Fauna and Flora** took just under two years, and has 22 parties so far. The **Convention Concerning the Protection of the World Cultural and Natural Heritage** took just over three years, and has 20 parties so far. The Wetlands Convention, however, has taken four years and ten months, and has a mere eight parties so far.

Not a single country in the Americas has even signed it, yet the United States, for example, has a great deal of money to lose with the loss of its coastal wetlands. In 1970, the National Estuary Study estimated the final market value of estuary dependent or associated fish at $1.1 billion. It also estimated conservatively that the annual rate at which the coastal wetlands of the US are disappearing is 0.5 to 1.0 percent of the total area.

Clearly, there is a pressing need to increase public awareness of the importance of wetlands, of the threats to them, and of the role of the Wetlands Convention in their conservation. It is to be hoped that adherence to the Convention will be the major goal of wetlands campaigns scheduled for 1976.

The Council of Europe has launched its 1976 campaign on wetlands. And in the US, the National Wildlife Federation's National Wildlife Week, 14–20 March, is to be built around the theme "save our wetlands". No doubt throughout the rest of the world, IUCN's members will urge their governments to adhere to this important convention as soon as possible.

(Reprinted from the IUCN Bulletin of January 1976)

Four Organizations Urge Protected Areas Network

A nation's plant and animal resources, together with their environments, are essential elements for long-term development. For this and other reasons, conservation of these ecosystems—in national parks and equivalent reserves, for instance—is generally regarded as the linchpin of international conservation. Considerable effort has been expended to advance their safeguarding.

The newest major effort in this direction comes from the four major international organizations concerned with nature conservation. They have formed an Ecosystem Conservation Group to help coordinate their activities in this particular field. The organizations are: the United Nations Environment Programme (UNEP), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the International Union for Conservation of Nature and Natural Resources (IUCN). The action was taken on the initiative of UNEP.

An important part of the group's work is to facilitate the progressive establishment of an international network of protected areas: national parks, "biosphere reserves", game sanctuaries, and a variety of others.

The Ecosystem Conservation Group meets several times a year to examine general issues as well as specific projects and specific country situations. Broadly, the roles of the four organizations in this field are: UNEP, to facilitate cooperation and stimulate action; IUCN, to identify problem areas requiring attention; UNESCO, research, education and scientific training; and FAO, management and training at professional and technical levels.

PARK PRACTICE

Signs for Parklands

Signs are basic. They convey, or should convey, traffic directions and other essential information wherever park and recreation managers have to deal with large numbers of visitors.

There can be little doubt about the scarcity of good signs, or about the oversupply of bad ones. Even in parklands, the landscape suffers from the chronic neglect of the signmaker's art though seldom from any lack of his industry.

Parks are certainly not the place for the sign clutter and intrusion common in urban areas. For parks, a good first rule ought to be the fewer signs, the better. A second rule might be that if signs are used, they should be well made, clearly marked with lettering and other devices, and carefully positioned, with full regard for the park environment.

Equally important is the sign's utility. Can visitors grasp the message and respond to it? Can they do this quickly and without confusion or misunderstanding?

The park or recreation manager looking for easy solutions and low-cost sign components may not find them. In many countries, it is a fact that signing has been neglected by both designers and manufacturers, and, as a result, modern signing techniques and quality commercial components are not available widely.

Several European countries, particularly Switzerland, have advanced roadway signalization to a highly refined system including the development of stock components that can be ordered from catalogs. These same components are readily adaptable for park and recreation purposes.

For those managers who have a desire to develop a systematized sign program but without large outlays of capital the outlook is not always bright.

It is unlikely that park managers can call upon their own organization for new design approaches.

The conceptual requirements of a far-reaching sign program almost always extend beyond the capabilities of those who put up and maintain signs.

Vincent Gleason, the author of this article, is Chief of Publications for the U.S. National Park Service.

This is not a job for a sign painter, even a competent one. It is a job for a specialist, and few organizations have sign designers either trained or experienced in this line of work.

One way to revamp an on-going program is to employ a design firm with a reputation for accomplishment in sign work. Qualified consultants can look at the client's situation through fresh eyes, study the problems in their broadest terms, utilize outside specialists such as architects, letterers, or engineers as they may be needed, and make proposals for actions to be taken.

From such an evaluation of the total sign enterprise should come a coordinated group of elements, including panels, supports, typefaces, colors, symbols, and surface materials. Attention should be given to the design of all components as parts of a system: how the pieces are shaped; how they are manufactured; how they are assembled into a unit; and how they are installed at the point of use.

When the new program is ready for introduction, the principles should be documented clearly and simply for those who will do the work. This bringing together of all the parts of the new sign program in printed form is a practical need that is essential to the success of the program.

The documentation step can usually be realized through a sign manual or wall chart where the program is large, or with easily duplicated specification sheets where it is small. The organization, thus guided by an overall plan, can move step by step with each new sign contributing to the cohesiveness of the whole.

Two influential projects have been financed over recent years by agencies of the United States Government, and should be of interest to park and recreation managers concerned with signage.

The first project, sponsored by the U.S. National Park Service, is an example of a large, coordinated signing system, along with a case study of the conditions leading to its development.

The second project, undertaken by the American Institute of Graphic Arts under a grant from the U.S. Department of Transportation, has brought about the refinement of 34 passenger- and pedestrian-oriented symbols for use in transportation related facilities.

The U.S. National Park Service Sign System

In the early 1960's, officials of this organization came to realize that a systematic approach to signing for roadways and other applications would be needed to keep pace with the call for new signs, and the maintenance of those already in use.

The Service's sign work at that time was a mixture of approaches. Every park had its own signs, often made according to local ideas, materials, or facilities. Routing crude letters in planks was a common approach, but there was little continuity in signs from one park to another to help visitors understand messages. There was no comprehensive plan to keep up with the number of new parks then being established, or the very large increase in visitor use that came during the 1960's. Costs were high, results were marginal, and something had to be done to put the work on a practical basis.

It was clear to staff members concerned with signs that the Park Service should not attempt to handle the assignment itself. An outside graphics design firm was asked to study the entire NPS sign operation, then covering 250 parks with more than 12 million hectares of the most varied terrain in America.

The NPS sign study was a substantial undertaking and an attempt to solve a fundamental problem once and for all with a basic system flexible enough to meet the needs of any park. The study was planned as a pilot and demonstration project so that the findings could be made available to other park organizations.

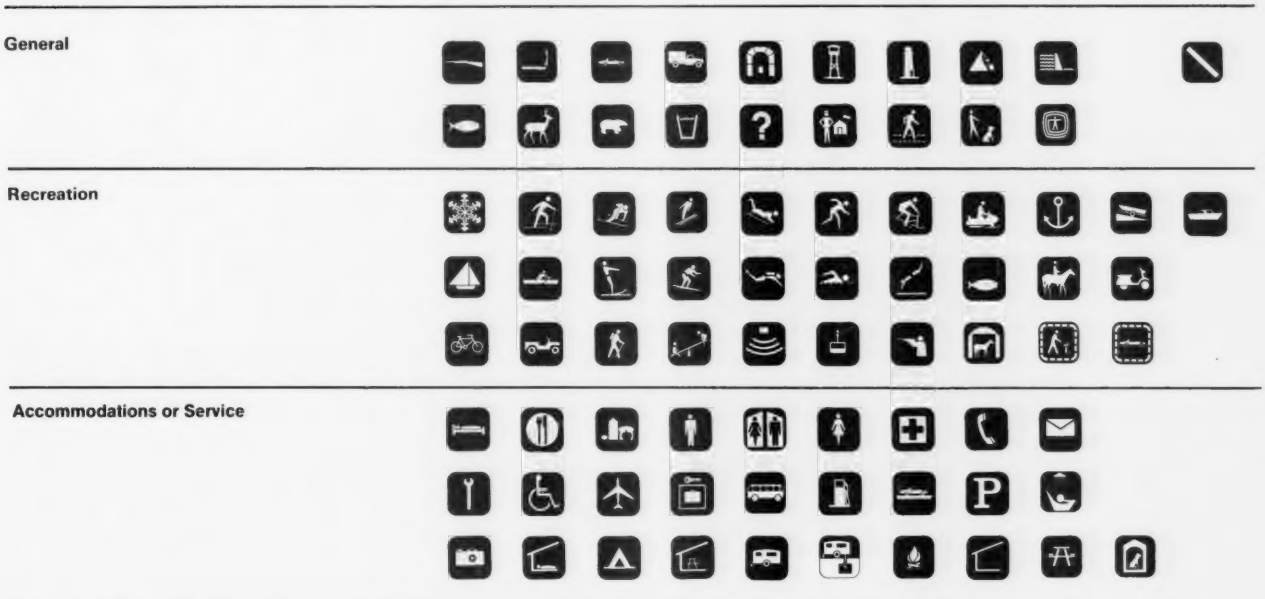
The resulting effort spanned some three years of study and experimentation. Tests were conducted into materials and struc-

tures. Symbol communication was explored and adopted, and included comments by UNESCO's International Committee for Breaking the Language Barrier. New techniques were perfected for the laying down of letters, and for the spacing of words and other graphic elements on panels. Prototype signs were built and put into actual use along roads and trails. Finally, the new signs were installed in an entire park in an attempt to refine the details of the total proposal.

The results of this project were then documented and turned over to the National Park Service for implementation.

Today, throughout the National Park System, signs are being installed which are based on the system developed in this project. Since more than 300 park areas are involved, the Service is not rushing to resign all of them at once. Rather, it installs the newer-type signs as developing parks are made operational, or as outmoded signs are replaced in the established parks.

For a copy of the NPS Sign System Specifications describing the program, write to the Sign Coordinator, Denver Service Center, National Park Service, P.O. Box 25287, Denver, Colorado 80225, USA. Because of the limited supply, copies are available for government agencies only.

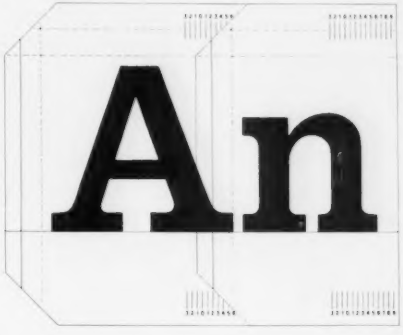


Standard Sign Symbols *The National Park Service sign system provides for 88 image symbols to convey essential messages. This heavy dependence on symbol markings was one of the hallmarks of this program. Some of the symbols are in established international practice, for example those using a red slash mark diagonally across a symbol to indicate that the activity is prohibited and those using the letter "P" for parking. It may be said that the USNPS program standardized too many symbols. As a rule, symbols should be confined to commonly required services and frequently needed information. (Eventually the DOT symbols no doubt will be adopted to replace some of the "Accommodations or Service" symbols now used by the US National Park Service*—Ed.*)*

Standard Lettering *The NPS typeface is based on Haas Clarendon, an Egyptian letter form based on thick and thin strokes and heavy serifs. It is a distinctive letter which is easy to read, and is well suited for signs when properly handled. The designers modified the Clarendon letter slightly by reducing the size of the serifs to gain more space between connecting serifs.*

Letter-Spacing Guides *Clarendon letters at the size normally used on NPS signs require special care in placement. The designers therefore perfected a letter-spacing system so that persons relatively untrained in graphics can achieve the correct placement of the transfer letters, which are cut from a plastic material having a pressure-sensitive underside.*

Detailed instructions are furnished for (1) formulating the message, (2) determining the letter size, (3) determining the size of the message and (4) determining the size of the sign panel and the layout of the message.



Sign Layout Guides *An effective sign depends on its layout. The system uses simple step-by-step instructions for the placement of the messages on signs. To achieve uniformity, rigid limitations were laid down to control the location of every element on the panel. Typical layouts were prepared for all anticipated combinations of elements, including symbols, highway identification markers, and direction arrows.*

Sign Colors *Brown is used as the base color for all structural and panel parts in the NPS sign system. White is always used for letters, symbols, and borders.*

Sign Panels *Depending on its size, the panel, or face of the sign, is wood, plastic, or aluminum. Some panels are lettered by silk screen processing near the point of installation and these, of course, have a painted surface. Most signs, however, are faced with one of two types of plastic sheeting; both are thin and flexible for easy application. One sheet is reflective material.*

Sign Supports *For reasons of cost, sign panels are bolted to support posts in a simple combination. The posts are usually rectangular tubing in weathering steel, or wood. The color of the steel is deep brown, and where wood is used in place of the steel, it is painted brown. Single-post and double-post supports are employed, depending on the size of the sign. More elaborate sign supports may be used where display emphasis is desired, such as park entrances, monuments, or for building identification.*

The U.S. Department of Transportation's Sign Symbol Standardization Project

The use of symbol signs has grown rapidly in the U.S. particularly with the great increase in travel from other countries over the last decade. The goal of the D.O.T. program was to develop a set of coordinated symbols that would simplify basic messages at travel-related facilities, in part to overcome the language problems of travelers.

The assignment involved two active committees, one in the Government and one at the American Institute of Graphic Arts which did most of the field work, and finally, a team of prominent designers which did the actual design work for the AIGA. The group examined large quantities of existing symbol signs in the process of developing the 34 new symbols.

One of the primary considerations of the designers was the steady proliferation of symbols, often designed for special events such as the Olympic Games or international expositions, as well as those appearing at travel-related places such as airports. It was a stated purpose of the project to forestall this continuing spread of often redundant symbols for individual facilities and to work toward a basic system that could be adopted anywhere.

Symbol Signs Chart—*Here, organized by the four categories, are the U.S. Department of Transportation travel symbols.*

Thomas Geismar, Chairman of the AIGA committee, addressing this point notes that, "Out of this effort has come a number of well-conceived and well-executed individual symbols but no one complete system that is immediately adaptable to the needs of transportation facilities in the U.S." Geismar believes this kind of message must be put in context with other forms of signing. "The effectiveness of symbols is strictly limited," Geismar says, "They are most effective when they represent a service or concession that can be indicated by an object, such as a bus or telephone. They are much less effective when used to represent a process or activity such as a ticket purchase, because these are complex interactions that vary considerably from mode to mode, and even from carrier to carrier. I am convinced that symbols are useless at a facility unless incorporated as part of an intelligent total sign system. The use of symbols alone, without consideration of the verbal messages and all other signing, will only add to the confusion."

In order to isolate the basic visual vocabulary of the program, the Department of Transportation and the AIGA committee settled on a classification of symbol messages grouped according to application.

The first category was PUBLIC SERVICES and 12 symbols were grouped here to represent services widely used in transportation-related places. To this 7 additional symbol messages were added to represent all common transportation modes.

The second category, CONCESSIONS, includes symbols that are related to commercial activities.

The third category, PROCESSING ACTIVITIES, was developed for the symbols that represent passenger-related procedures.

The fourth category was created for REGULATIONS. Three prohibitory signs were selected here along with two closely needed opposites. These groups are illustrated here for reference only.

Most of the new symbols were developed from existing concepts in common use. The AIGA committee collected everything available related to the four categories selected. From this material the strengths and weaknesses of earlier versions were analyzed, and new symbols drawn along simpler lines. Where no model existed, and a new symbol was needed, the design team introduced one in harmony with the other designs.

With the new symbols available to park and recreation managers, what is it they offer beyond those previously available?

The new symbols were planned and drawn as a basic system of messages, and, with the support of the two sponsoring institutions, they should be widely established. As graphic devices, they are bold and easy to read; they are consistent in pictorial and line treatment; and they are attractive.

The Department of Transportation plans to install the new symbols this year at sites related to the celebration of the Bicentennial of the United States, such as the new visitor center in Washington, D.C. After this testing period, the 34 symbols will be evaluated and redesigned if necessary.

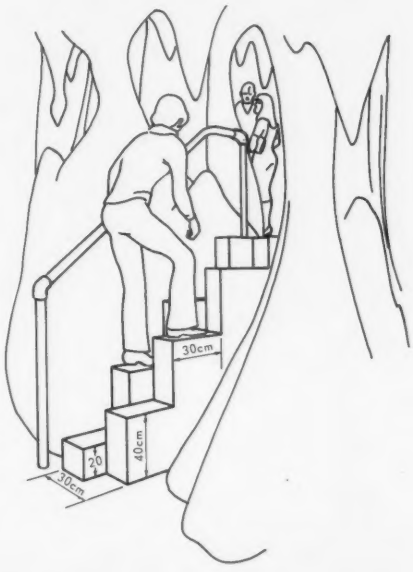
The Department then intends to recommend these symbols as a new national standard for travel messages.

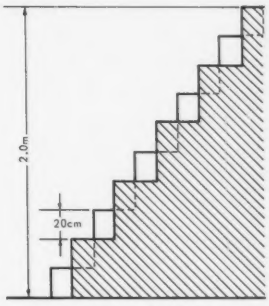
For a 228-page book describing the study in detail, plus guidelines for location, send $6.95 to the National Technical Information Service, Springfield, Virginia 22152, USA, and ask for the report titled "Symbol Signs," number DOT-OS-40192 (November 1974).

Stairs for a Narrow Passage

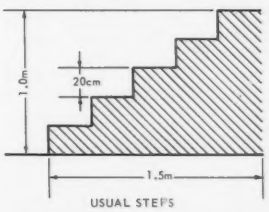
Here is a good idea, noted in one of Yugoslavia's national parks, for a stairway in a steep and narrow passage. The treads are small, only large enough to accommodate one foot at a time, and separate stairs are provided for left and right feet. The secret of the design is the staggered relationship of the two stairs, which permits much steeper than normal ascent.

These drawings illustrate the principle. Dimensions may vary from those shown, of course.





YUGOSLAVIAN CAVE STEPS



USUAL STEPS

Care of Ropes

Rope is among the most useful equipment found in national parks. Good rope is also expensive so it should be handled with respect and given the care it deserves.

Losses can be considerable due to damage and deterioration, but this generally can be avoided by timely attention to several basic and simple maintenance practices.

Whether made of hemp, manila, cotton, linen or any one of several synthetic fibres, rope should be kept clean. Dirt, sand or mud can be damaging since the sharp grit they often carry can cut the fibres. Dirty ropes should be washed in fresh water and mild detergent and dried in the air.

Be careful not to foul rope with oil or grease. If this can't be avoided—as sometimes it cannot—detergent solutions, benzine or carbon tetrachloride can be used to help remove it, but there is no way to really clean a rope once stained.

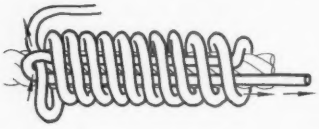
A major cause of loss is ravelling or untwisting (unlaying). This can be prevented easily by whipping the cut ends with cord or twine. If you are taking new rope from a coil or reel, be sure to put a temporary whipping or tape on both sides of the point where the cut is to be made. Masking tape can be used for this but both ends of your new rope must be permanently whipped. Binding the cut ends or whipping, as this process is called in nautical language, is done by tightly seizing the strands of the rope together with waxed twine or cord. Beeswax stabilizes twine, and gives it greater strength and resistance to weather.

There are several methods of whipping but the simple method illustrated here should be adequate. Be certain the whipping twine is pulled tight on each turn and that the width of the total binding is greater than the diameter of the rope.

Steps in whipping a rope end:

1.

2.



3.

Note: The size of the whipping cord shown in these drawings has been greatly exaggerated.

Binding with tape is a quick way to prevent ravelling but this cannot be regarded as anything but temporary. Tape eventually dries, slips or loosens and should be replaced by cord whipping.

Synthetic fibres will melt. Thus additional protection for a nylon, polypropylene or Dacron rope can be gained by sealing the cut end with heat.

Put the cut end against a small flame—a match, candle, cigarette lighter, etc.—only long enough for the yarns to melt and seal. Synthetics will often catch fire. If this happens quickly blow out the flame. The ball of molten material which may have formed on the end of the rope can be rolled as it cools against a knife blade or any hard surface to shape it back to the rope's diameter. But be careful. Molten nylon or polyester fibre is sticky and can cause a bad burn.

A third method of finishing a rope is by back splicing. This is fairly simple to do. A back splice is neat and permanent, but it is not always desirable since the splice increases a rope's diameter and this could prevent its use with a block or pulley.

Good rope is tough, but should be protected at points of wear. A taut rope rubbing against a dock, tree, rock or any sharp or rough surface, can wear through quickly. Protect it at such points by wrapping with canvas or leather. An alternate method is to use the same whipping described above, but over a longer length as required to protect. Where long exposure to wear is expected the rope can be pushed through a length of hose, which will insulate it from the rough surface.

With good care, rope will last for years and lose little of its strength and suppleness. Few items of equipment are so useful in everyday work or are so necessary in emergencies. It pays to give it the care it deserves.

— R. Standish

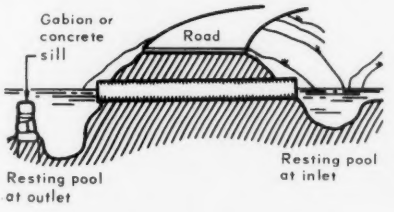
Culverts for Fishes

National parks, reserves and forests often have road networks that cross rivers and streams. Culverts have been installed at many of these crossing points. Because any physical change in the stream bed or water flow can affect fish life, managers should take particular care in the design and placement of these structures. Important factors to take into account to assure fish passage are water velocity, culvert length, gradient, fish species present, and stream bed conditions in all types of weather.

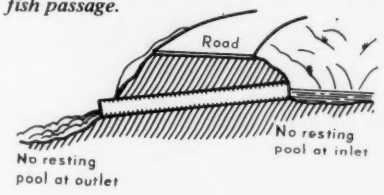
The gradient of a culvert may cause water to flow at too high a speed to allow fish to move freely. Recommended maximum water velocities for round culverts up to 30 metres in length vary with the species. For adult trout, for example, about 60 cm per second is probably a safe maximum.

Long culverts should have resting pools for fish at each end. On streams where there is a wide seasonal difference in water volume, stacking culverts, or placing them at different levels, will allow water to pass through at least one during a low runoff.

Culvert installation with proper water depth and velocity. This is suitable for fish passage.



Culvert with steep gradient and high water velocity. This installation is unsuitable for fish passage.



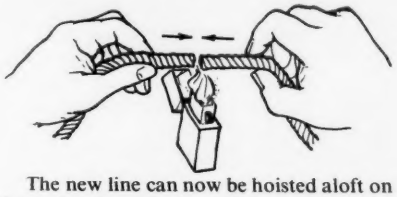
Mini Display Cases

Rangers, interpreters and naturalists often have small, fragile and easily lost objects to show visitors. These "mini display cases" can solve many problems. They can be handled and passed around with ease, and cost virtually nothing to make since they utilize such readily available containers as glass babyfood jars and plastic pill bottles.

This idea comes from the California State Department of Parks and Recreation. Its originator notes that specimens should be thoroughly dry before being sealed inside a mini display case. A desiccant and a few moth crystals can usefully be added if they are available.

An Easy Way to Replace a Flagpole Halyard

When faced with the problem of reeving a new halyard on a flagpole, the solution can be easy if both old and new lines are made of nylon or Dacron (Terylene). Simply join the ends of the old and new lines temporarily by melting end fibres together in a small flame (a little heat goes a long way). Rotate the two lines slowly as the fibres melt. Withdraw them from the flame before a ball of molten material forms, and if the stuff ignites, blow out the flame at once. Hold the joint together until it is cool and firm.



The new line can now be hoisted aloft on the end of the old one, which can be broken off when the new halyard is in place. If both lines are of about the same diameter the joint will freely pass over the sheave or through a block. If one is smaller, haul it through on the end of the larger.

If you've any doubt about the method, practice joining a few odd bits together first.

PUBLICATIONS

The Countryside on View: A Handbook on Countryside Centres, Field Museums, and Historic Buildings Open to the Public. (Triskel edition) By Elisabeth Beazley
Christopher Davis (Publishers), Swansea, 1975, 207 pages, UK £1.50

This excellent little book provides a stimulating blend of common sense and sensitive perception. The author is an architect who works as a consultant in countryside recreation in its broadest sense. Written in a practical, conversational style, the book discusses fundamental issues of interest to park advisors, planners, designers, managers, and interpreters, as well as to travel writers and discerning citizens. Black and white photographs and drawings amplify the text.

Drawing on observation in the United States and the Middle East as well as Britain, the author describes those characteristics that enhance the visitor's experience of a unique place. Her emphasis is upon the ". . . physical means by which the significance of a place, or the historic significance of something that has happened there, can be imparted to those who have come to see it." She concentrates on the small center: ". . . a place where those interested can find out more and where those who have turned up by chance may be stimulated to look deeper." And she cautiously accepts the American use of the word "interpretation" to describe the process.

A broad range of possibilities is presented, partly in the order in which a site would be planned. Communication problems between architect and curator are recognized and cautioned against. Siting and design of the building are fully explored, with practical and esthetic judgments based on how the public actually behaves. While many of the author's observations relate specifically to the climate and building techniques of Britain, there is still much guidance for readers in other countries.

Especially noteworthy is the author's sympathetic examination of the use of historic buildings and sites. The phenomenon of increasing tourism is not confined to Britain. She neatly summarizes the dilemma: ". . . the greater the number of visitors and the consequent necessity of protecting the property from wear and tear, the greater will be the cost of showing and the more likely the loss of original atmosphere." All her suggestions for overcoming these problems respect the integrity of the place and the fragility of its elusive atmosphere. She recommends understatement in any unavoidable anachronisms, and distinguishes among various visitor interests to more nearly match needs and resources. She is particularly sensitive to preserving the "lived-in illusion" of historic buildings and the "sweet disorder" of sites, consistent with their preservation.

The book concludes rather abruptly with a helpful discussion of miscellaneous "visitor paraphernalia" such as parking lots, play areas, souvenirs, signs and labels, guidebooks, litter, and admission charges.

Two appendices on exhibit preparation and British supply sources were written by Geoffrey Stansfield of the University of Leicester. The bibliography cites British professional publications mostly. A misassembled table of contents is confusing but the index is a helpful addition.

All in all, *The Countryside on View* is a very useful guide to preserving and presenting the natural and cultural values of public parks in ways so that "the place will win."
—*Steve Lewis*

A Manual on Building Construction By the Rev. Harold K. Dancy
Intermediate Technology Development Group Ltd., 1973, LONDON.
360 pages, £1.60 or US $3.85 (surface postage included)

This is a practical, well-illustrated handbook on construction of small buildings, using local materials, suitable for a great variety of ground and climatic conditions. Based on the author's many years of experience as chief missionary builder for the Sudan Interior Mission, it is simply and clearly written and covers everything from site preparation to painting and decorating. Such practical subjects, for many parts of the world, as brickmaking, rammed earth construction, ant barriers (coursing), grass roofing and septic waste disposal are included.

The book can be ordered from Intermediate Technology Publications Ltd., 9 King Street, Covent Garden, London WC2E 8HN, UK.

Second World Conference on National Parks
Edited by Sir Hugh Elliott, Bt.
Published by IUCN on behalf of the National Parks Centennial Commission. 1974.
Morges, Switzerland
504 pages (English edition). US $10 including surface postage.

This excellent compendium of national park philosophy and practice, in the form of 32 professional papers and discussions by expert panels and participants, is still one of the best references for managers of national parks and equivalent reserves. It can be ordered from the IUCN Secretariat at 1110 Morges, Switzerland. Separate editions in English, French or Spanish are available.

Authors and publishers of books dealing with national parks and other protected areas and the matters involved in their planning, use, protection and maintenance, who would like their works considered for review should send review copies to the Editor, PARKS Magazine.

PARK VIEWPOINTS

Ecosystem People

The growing concern for the future of those people who still practice traditional ways of life and for the cultural values that they preserve was reflected in a gathering of anthropologists and ecologists in England in December 1974. They discussed the Future of Traditional 'Primitive' Societies. This was one of a series of meetings sponsored by the British Social Science Research Council and organized by the Society for Indigenous Peoples (formerly the Aborigines Protection Society).

It is not my intention to summarize the meeting nor to discuss its conclusions. This will be done by the organizers. It is worthwhile, however, to consider where IUCN should stand in relation to 'threatened peoples' and 'endangered cultures', since plans for world conservation necessarily impinge upon the future of all who live in those areas of the world that are not yet greatly modified by global technological societies. Certain conclusions that I drew from the Cambridge meeting, and discussed at the South Pacific Conference on National Parks and Reserves in February 1975, may be relevant.

The so-called 'traditional primitive societies' of the world—pastoral nomads, shifting agriculturalists, hunter-gatherers and various combinations of these—have little in common except that they continue to survive for the most part in those areas that have been, thus far, bypassed by industrialized societies. Most such surviving societies are no longer 'traditional' and certainly not 'primitive', having already been modified and changed by contacts with the outside world. Most of those peoples who still practise traditional ways of life are lacking in political power, generally ignored by adherents of the dominant cultures of their countries, and form part of a Fourth World which is scarcely recognized by the other three.

Some appear to have the capacity to adjust and adapt to the prevailing ways of the nation states which claim sovereignty over them—most pastoral nomads and some shifting cultivators are in this category. Others who are scarcely aware of the existence of nation states are exceedingly vulnerable to any contact with outside societies, likely to be physically decimated by disease, and to lose most of their cultural and social integrity. These are the endangered peoples of the earth, and often occupy those wilder lands of interest to conservationists. I have called them 'ecosystem people' because they form a part of, and are totally dependent upon, the continued functioning of a local ecosystem. This contrasts with the 'biosphere people' who dominate the globe, can draw on the resources of many ecosystems, and in turn can, and do, shatter the internal stability of most ecosystems which they exploit.

The economy of ecosystem peoples is in balance with the dynamic functioning of natural ecosystems. The economy of biosphere peoples tends to be destructive of such ecosystems, and special measures must be taken if even samples of them are to be preserved. Biosphere peoples set aside national parks. Ecosystem peoples have always lived in the equivalent of national parks.

In an earlier issue of this *Bulletin* (April 1975), the importance of protecting cultural diversity was stressed. One way to accomplish this is protection of those peoples who still live in a spiritual continuum with the natural world. For many of the hunter-gatherers and shifting cultivators who form part of this continuum, survival depends on recognition of their rights to the land they have traditionally occupied. It involves also recognition of their right to maintain a separate existence, apart from the dominant society, and protection of this right against those who seek to change their beliefs, modify their customs, or exploit their resources.

The problem of endangered peoples is like that of endangered species. With continued neglect it will solve itself, the people will die, or the species will become extinct. But the loss to humanity will be incalculable. If you believe, as some of us do, that the future depends on our ability to restore, at a higher technological level, the old man/nature continuum, the loss of those who can guide us would be tragic. —*R. F. Dasmann, IUCN Bulletin, August 1975*

Invitation

Your comments about this new
magazine are very much wanted.
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we would appreciate a letter telling
us what you think.
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Or not technical enough?
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Write:
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Walrus breeding and foraging areas are now protected in the North East Greenland National Park. There may be as many as 200 of these animals left. Photo: Hans Meltofte

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